WHAT IS CLAIMED IS:

1. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient in a macro block;

leaving as is only one "non-zero" coefficient encountered first in scanning in said DCT block detected to contain said DCT coefficient and transcoding all the other DCT coefficients to "0"; and

outputting said bitstream having a code quantity thereof reduced by said transcoding step.

2. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient in an inter-macro block accompanied by predictive coding;

leaving as is only a DC coefficient in said DCT block detected to contain said DCT coefficient in said inter-macro block and transcoding all the other AC coefficients to "0"; and

outputting said bitstream having a code quantity thereof reduced by said transcoding step.

3. The bitstream transcoding method according to Claim 2, wherein if said DC coefficient is "0", a predetermined AC coefficient is assigned as said coefficient to be left as is.

4. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT

coefficient in an intra-macro block not accompanied by predictive coding;

leaving as is only a DC coefficient in said DCT block detected to contain said DCT coefficient in said intra-macro block and transcoding all the other AC coefficients to "0"; and

outputting said bitstream having a code quality thereof reduced by said transcoding step.

5. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient in a macro block;

leaving as are only the first through N'th coefficients (N: natural number) in said DCT block detected to contain said DCT coefficient and transcoding all the other DCT coefficients to "0"; and

outputting said bitstream having a code quantity thereof reduced by said transcoding step.

6. The bitstream transcoding method according to Claim 5, wherein when said first through N'th coefficients encountered in said scanning are all "0", a predetermined AC coefficient is assigned as said coefficient to be left as is.

7. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a macro block type indicates "performing of motion compensation and containing of a block having a DCT coefficient";

transcoding all DCT coefficients in a macro block concerned in said detection to "0" and transcoding said macro block type to such a type that indicates "performing of motion

compensation and having no DCT coefficient"; and

outputting said bitstream having a code quantity thereof reduced by said transcoding step.

5   8. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a macro block type indicates "performing of motion compensation, containing of a block having a DCT coefficient, and being a variation point in a quantization step";

transcoding all DCT coefficients in a macro block concerned in said detection to "0" and transcoding said macro block type to such a type that indicates "performing of motion compensation and having no DCT coefficient"; and

outputting said bitstream having a code quantity thereof reduced by said transcoding step.

9. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient of a chrominance signal in a macro block;

transcoding all DCT coefficients in said DCT block of said chrominance signal concerned in said detection to "0" and changing a coded block pattern correspondingly; and

outputting said bitstream having a code quantity thereof reduced by said transcoding step.

30   10. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient of a chrominance signal in a macro block;

leaving as is only one "non-zero" coefficient encountered first in scanning in said DCT block containing said DCT coefficient of said luminance signal in a macro block corresponding to said DCT block of said chrominance signal

5 concerned in said detection and transcoding all the other DCT coefficients to "0";

transcoding all DCT coefficients in said DCT block of said chrominance signal concerned in said detection to "0" and changing a coded block pattern correspondingly; and

10 outputting said bitstream having a code quantity thereof reduced by said transcoding step.

11. A bitstream transcoding method comprising the steps of:

15 analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient in a macro block;

leaving as is only one "non-zero" coefficient encountered first in scanning in said DCT block detected to

20 contain said DCT coefficient and transcoding all the other DCT coefficients to "0";

outputting said bitstream having a code quantity thereof reduced by said transcoding step;

replacing an individual picture in said bitstream to

25 be input with a dummy picture; and

outputting said bitstream having a code quantity reduced by said replacing step,

wherein the above-mentioned plurality of bitstream transcoding methods having different aspects is switched

30 appropriately in configuration.

12. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input

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to thereby detect whether a relevant DCT block contains a DCT coefficient in an inter-macro block accompanied by predictive coding;

leaving as is only a DC coefficient in said DCT block detected to contain said DCT coefficient in said inter-macro block and transcoding all the other AC coefficients to "0";

outputting said bitstream having a code quantity thereof reduced by said transcoding step;

replacing an individual picture in said bitstream to be input with a dummy picture; and

outputting said bitstream having a code quantity reduced by said replacing step,

wherein the above-mentioned plurality of bitstream transcoding methods having different aspects is switched appropriately in configuration.

13. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient in an intra-macro block not accompanied by predictive coding;

leaving as is only a DC coefficient in said DCT block detected to contain said DCT coefficient in said intra-macro block and transcoding all the other AC coefficients to "0";

outputting said bitstream having a code quality thereof reduced by said transcoding step;

replacing an individual picture in said bitstream to be input with a dummy picture; and

outputting said bitstream having a code quantity reduced by said replacing step,

wherein the above-mentioned plurality of bitstream transcoding methods having different aspects is switched appropriately in configuration.

14. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient in a macro block;

leaving as are only the first through N'th coefficients (N: natural number) in said DCT block detected to contain said DCT coefficient and transcoding all the other DCT coefficients to "0";

outputting said bitstream having a code quantity thereof reduced by said transcoding step;

replacing an individual picture in said bitstream to be input with a dummy picture; and

outputting said bitstream having a code quantity reduced by said replacing step,

wherein the above-mentioned plurality of bitstream transcoding methods having different aspects is switched appropriately in configuration.

15. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a macro block type indicates "performing of motion compensation and containing of a block having a DCT coefficient";

transcoding all DCT coefficients in a macro block concerned in said detection to "0" and transcoding said macro block type to such a type that indicates "performing of motion compensation and having no DCT coefficient";

outputting said bitstream having a code quantity thereof reduced by said transcoding step;

replacing an individual picture in said bitstream to be input with a dummy picture; and

outputting said bitstream having a code quantity reduced by said replacing step,

wherein the above-mentioned plurality of bitstream transcoding methods having different aspects is switched appropriately in configuration.

16. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a macro block type indicates "performing of motion compensation, containing of a block having a DCT coefficient, and being a variation point in a quantization step";

transcoding all DCT coefficients in a macro block concerned in said detection to "0" and transcoding said macro block type to such a type that indicates "performing of motion compensation and having no DCT coefficient";

outputting said bitstream having a code quantity thereof reduced by said transcoding step;

replacing an individual picture in said bitstream to be input with a dummy picture; and

outputting said bitstream having a code quantity reduced by said replacing step,

wherein the above-mentioned plurality of bitstream transcoding methods having different aspects is switched appropriately in configuration.

17. A bitstream transcoding method comprising the steps of:

analyzing a data structure of a bitstream to be input to thereby detect whether a relevant DCT block contains a DCT coefficient of a chrominance signal in a macro block;

transcoding all DCT coefficients in said DCT block of said chrominance signal concerned in said detection to "0" and

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changing a coded block pattern correspondingly;

outputting said bitstream having a code quantity
thereof reduced by said transcoding step;

replacing an individual picture in said bitstream to
5 be input with a dummy picture; and

outputting said bitstream having a code quantity
reduced by said replacing step,

wherein the above-mentioned plurality of bitstream
transcoding methods having different aspects is switched
10 appropriately in configuration.

18. A bitstream transcoding method comprising the
steps of:

analyzing a data structure of a bitstream to be input
15 to thereby detect whether a relevant DCT block contains a DCT
coefficient of a chrominance signal in a macro block;

leaving as is only one "non-zero" coefficient
encountered first in scanning in said DCT block containing said
DCT coefficient of said luminance signal in a macro block
20 corresponding to said DCT block of said chrominance signal
concerned in said detection and transcoding all the other DCT
coefficients to "0";

transcoding all DCT coefficients in said DCT block of
said chrominance signal concerned in said detection to "0" and
25 changing a coded block pattern correspondingly;

outputting said bitstream having a code quantity
thereof reduced by said transcoding step;

replacing an individual picture in said bitstream to
be input with a dummy picture; and
30 outputting said bitstream having a code quantity
reduced by said replacing step,

wherein the above-mentioned plurality of bitstream
transcoding methods having different aspects is switched
appropriately in configuration.

19. The bitstream transcoding method according to Claim 11, wherein, in said step of switching the plurality of bitstream transcoding methods having different aspects, said plurality of bitstream transcoding methods is switched each time a picture not employing predictive coding is input.

20. The bitstream transcoding method according to Claim 11, wherein, in said step of switching the plurality of bitstream transcoding methods having different aspects, said plurality of bitstream transcoding methods is switched each time a GOP header is input.

21. The bitstream transcoding method according to Claim 11, wherein, in said step of switching the plurality of bitstream transcoding methods having different aspects, said plurality of bitstream transcoding methods is switched each time a picture not employing predictive coding is input and each time a GOP header is input.

22. A bitstream transcoding method comprising the steps of:
    setting at level 1 such a case that performs the transcoding method according to Claim 1 on a picture employing bilateral prediction;
    setting at level 2 such a case that performs a transcoding method of replacing a picture employing bilateral prediction with a dummy picture;
    setting at level 3 such a case that performs the transcoding method according to Claim 1 on a picture employing forward prediction;
    setting at level 4 such a case that performs a transcoding method of replacing a picture employing forward prediction with a dummy picture;

setting at level 5 such a case that performs a transcoding method of replacing a picture not employing predictive coding with a dummy picture at a predetermined rate;

detecting an instruction for switching said plurality
5 of levels 1 through 5; and

switching said levels each time said switching instruction is received.

23. A bitstream transcoding method comprising the
10 steps of:

setting at level 1 such a case that performs the transcoding method according to Claim 5 on a picture employing bilateral prediction;

setting at level 2 such a case that performs a
15 transcoding method of replacing a picture employing bilateral prediction with a dummy picture;

setting at level 3 such a case that performs the transcoding method according to Claim 5 on a picture employing forward prediction;

20 setting at level 4 such a case that performs a transcoding method of replacing a picture employing forward prediction with a dummy picture;

setting at level 5 such a case that performs a transcoding method of replacing a picture not employing
25 predictive coding with a dummy picture at a predetermined rate;

detecting an instruction for switching said plurality of levels 1 through 5; and

switching said levels each time said switching instruction is received.
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24. A bitstream transcoding method comprising the steps of:

setting at level 1 such a case that performs the transcoding method according to Claim 7 on a picture employing

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bilateral prediction;

setting at level 2 such a case that performs a transcoding method of replacing a picture employing bilateral prediction with a dummy picture;

5   setting at level 3 such a case that performs the transcoding method according to Claim 7 on a picture employing forward prediction;

setting at level 4 such a case that performs a transcoding method of replacing a picture employing forward

10   prediction with a dummy picture;

setting at level 5 such a case that performs a transcoding method of replacing a picture not employing predictive coding with a dummy picture at a predetermined rate;

detecting an instruction for switching said plurality

15   of levels 1 through 5; and

switching said levels each time said switching instruction is received.

25.   A bitstream transcoding method comprising the

20   steps of:

setting at level 1 such a case that performs the transcoding method according to Claim 8 on a picture employing bilateral prediction;

setting at level 2 such a case that performs a

25   transcoding method of replacing a picture employing bilateral prediction with a dummy picture;

setting at level 3 such a case that performs the transcoding method according to Claim 8 on a picture employing forward prediction;

30   setting at level 4 such a case that performs a transcoding method of replacing a picture employing forward prediction with a dummy picture;

setting at level 5 such a case that performs a transcoding method of replacing a picture not employing

predictive coding with a dummy picture at a predetermined rate;

detecting an instruction for switching said plurality of levels 1 through 5; and

switching said levels each time said switching instruction is received.

26. A bitstream transcoding method comprising the steps of:

setting at level 1 such a case that performs the transcoding method according to Claim 9 on a picture employing bilateral prediction;

setting at level 2 such a case that performs a transcoding method of replacing a picture employing bilateral prediction with a dummy picture;

setting at level 3 such a case that performs the transcoding method according to Claim 9 on a picture employing forward prediction;

setting at level 4 such a case that performs a transcoding method of replacing a picture employing forward prediction with a dummy picture;

setting at level 5 such a case that performs a transcoding method of replacing a picture not employing predictive coding with a dummy picture at a predetermined rate;

detecting an instruction for switching said plurality of levels 1 through 5; and

switching said levels each time said switching instruction is received.

27. A bitstream transcoding method comprising the steps of:

setting at level 1 such a case that performs the transcoding method according to Claim 10 on a picture employing bilateral prediction;

setting at level 2 such a case that performs a

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transcoding method of replacing a picture employing bilateral prediction with a dummy picture;

setting at level 3 such a case that performs the transcoding method according to Claim 10 on a picture employing forward prediction;

setting at level 4 such a case that performs a transcoding method of replacing a picture employing forward prediction with a dummy picture;

setting at level 5 such a case that performs a transcoding method of replacing a picture not employing predictive coding with a dummy picture at a predetermined rate;

detecting an instruction for switching said plurality of levels 1 through 5; and

switching said levels each time said switching instruction is received.

28.   The bitstream transcoding method according to Claim 22, wherein said step of switching said levels is performed each time a picture not employing predictive coding is input.

29.   The bitstream transcoding method according to Claim 22, wherein said step of switching said levels is performed each time a GOP header is input.

30.   The bitstream transcoding method according to Claim 22, wherein said step of switching said levels is performed each predetermined time interval.

31.   The bitstream transcoding method according to Claim 22, wherein at least any one of said plurality of levels is left as is to thereby remove any desired one or an any desired plurality of said levels remaining.

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32. The bitstream transcoding method according to Claim 1, wherein a subject bitstream contains an image signal coded according to the MPEG standard.

5   33. A bitstream transcoding apparatus comprising:

code detecting means for analyzing a data structure of an input bitstream; and

DCT coefficients reducing means for leaving as is at least one "non-zero" DCT coefficient of DCT coefficients in a
10   DCT block of said input bitstream and transcoding all the other DCT coefficients to "0" based on a data structure analyzing result by said code detecting means.

34. A bitstream transcoding apparatus comprising:
15   code detecting means for analyzing a data structure of an input bitstream;

DCT coefficients reducing means for leaving as is at least one "non-zero" DCT coefficient of DCT coefficients in a DCT block of said input bitstream and transcoding all the other
20   DCT coefficients to "0" based on a data structure analyzing result by said code detecting means; and

macro block type transcoding method for transcoding a macro block type of said input bitstream to such a macro block type that corresponds to a processing result by said DCT
25   coefficients reducing means based on said data structure analyzing result by said code detecting means.

35. A bitstream transcoding apparatus comprising:

code detecting means for analyzing a data structure of
30   an input bitstream;

DCT coefficients reducing means for leaving as is at least one "non-zero" DCT coefficient of DCT coefficients in a DCT block of said input bitstream and transcoding all the other DCT coefficients to "0" based on a data structure analyzing

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result by said code detecting means; and

coded block pattern transcoding method for transcoding a coded block pattern of said input bitstream to such a coded block pattern that corresponds to a processing result by said

5   DCT coefficients reducing means based on said data structure analyzing result by said code detecting means.

36.   A computer-readable recording medium for use in bitstream transcode recording a program for executing:

10   a procedure for analyzing a data structure of an input bitstream; and

a procedure for leaving as is at least one "non-zero" DCT coefficient of DCT coefficients in a DCT block of said input bitstream and transcoding all the other DCT coefficients to "0"

15 based on said data structure analyzing result by said data structure analyzing procedure;

37.   A computer-readable recording medium for use in bitstream transcode recording a program for executing:

20   a procedure for analyzing a data structure of an input bitstream;

a procedure for leaving as is at least one "non-zero" DCT coefficient of DCT coefficients in a DCT block of said input bitstream and transcoding all the other DCT coefficients to "0"

25 based on said data structure analyzing result by said data structure analyzing procedure; and

a procedure for transcoding a macro block type of said input bitstream to such a macro block type that corresponds to a processing result by said DCT coefficient transcoding

30 procedure based on said data structure analyzing result.

38.   A computer-readable recording medium for use in bitstream transcode recording a program for executing:

a procedure for analyzing a data structure of an input

bitstream;

a procedure for leaving as is at least one "non-zero" DCT coefficient of DCT coefficients in a DCT block of said input bitstream and transcoding all the other DCT coefficients to "0"

5 based on said data structure analyzing result by said data structure analyzing procedure; and

a procedure for transcoding a coded block pattern of said input bitstream to such a coded block pattern that corresponds to a processing result by said DCT coefficient

10 transcoding procedure based on said data structure analyzing result.

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